

## Glacier National Park Glacier Area Summary

*Glacier area data determined by aerial photo analysis in conjunction with Portland State University.*

Glaciers that no longer exceed 100,000m <sup>2</sup> in area			
Glacier Name	1966 Area (m <sup>2</sup> )	2005 Area (m <sup>2</sup> )	1966-2005 % change
Gem Glacier **	29,135	20,379	-30.1%
Baby Glacier	117,111	77,510	-33.8%
Boulder Glacier	230,913	55,159	-76.1%
Harris Glacier **	152,694	34,526	-77.4%
Herbst Glacier **	170,162	53,550	-68.5%
Hudson Glacier	101,288	34,197	-66.2%
Lupfer Glacier	138,523	67,369	-51.4%
Miche Wabun Glacier ^^	296,139	131,298	-55.7%
N. Swiftcurrent Glacier	116,651	79,117	-32.2%
Red Eagle Glacier **	206,576	97,149	-53.0%
Shepard Glacier ^^	250,609	110,254	-56.0%
Siyeh Glacier	215,420	56,698	-73.7%
<b>TOTAL</b>	<b>2,025,221</b>	<b>817,205</b>	<b>-59.70%</b>
** Area calculated due to poor quality 2005 aerial photo. Area calculated by applying the average rate of change for 1998-2005 (14.2%) to 1998 area derived from aerial photos.			
^^ At current rates of retreat it is assumed that in 2010 this glacier no longer exceeds 100,000m <sup>2</sup> .			

Note: To be considered a glacier, the body of ice must have enough mass to move. USGS scientists in GNP use the common minimum area criteria of 0.1 km<sup>2</sup> (100,000 m<sup>2</sup>), or about 25 acres in size. Below this size, the ice is generally stagnant and is no longer considered a glacier.

Retreat rates vary for each glacier based on climate and other influences such as aspect, elevation, input of wind distributed snow, and the presence of a meltwater lake along a glacier's edge.

This table reflects area measurements analyzed from aerial photographs taken in 1966 and 2005. More recent suitable aerial photography on a parkwide scale has not been acquired to update this table due to seasonal conditions and financial constraints for contracted flights. Suitable aerial photos must be acquired late in the summer or early fall (Sept - early Oct.), when seasonal snow is at its minimum and glacier margins can be more accurately delineated.

**A glacier is always moving, but when its forward edge melts faster than the ice behind it advances, the glacier as a whole shrinks backward, or recedes.**

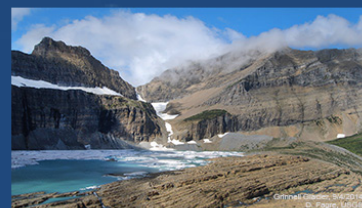
Glaciers that exceed 100,000m <sup>2</sup> in area			
Glacier Name	1966 Area (m <sup>2</sup> )	2005 Area (m <sup>2</sup> )	1966-2005 % change
Agassiz Glacier	1,589,174	1,039,077	-34.6%
Ahern Glacier	589,053	511,824	-13.1%
Blackfoot Glacier	2,334,983	1,787,077	-23.4%
Carter Glacier	273,834	202,696	-26.0%
Cheney Glacier	535,604	379,688	-29.1%
Dixon Glacier **	452,211	241,940	-46.5%
Grinnell Glacier	1,020,009	615,454	-39.7%
Harrison Glacier	2,073,099	1,888,919	-8.9%
Ipasha Glacier	321,745	212,030	-34.1%
Jackson Glacier **	1,541,217	1,012,444	-34.3%
Kintla Glacier ^^	1,728,828	1,136,551	-34.3%
Logan Glacier	503,298	302,146	-40.0%
Old Sun Glacier	421,254	370,257	-12.1%
Piegan Glacier	280,107	250,728	-10.5%
Pumpelly Glacier	1,498,137	1,257,211	-15.6%
Rainbow Glacier	1,284,070	1,164,060	-9.3%
Salamander Glacier	225,621	172,916	-23.4%
Sexton Glacier	400,444	276,780	-30.9%
Sperry Glacier	1,339,244	874,229	-34.7%
Swiftcurrent Glacier	261,410	223,519	-14.5%
Thunderbird Glacier	358,284	238,331	-33.5%
Two Ocean Glacier	428,828	275,022	-35.9%
Vulture Glacier **	649,267	315,001	-51.5%
Weasel Collar Glacier	592,420	553,018	-6.7%
Whitcrow Glacier	373,439	196,228	-47.5%
<b>TOTAL</b>	<b>21,066,582</b>	<b>15,497,709</b>	<b>-26.40%</b>

\*\* Area calculated due to poor quality 2005 aerial photo. Area calculated by applying the average rate of change for 1998-2005 (14.2%) to 1998 area derived from aerial photos.



1936

W.C. Alden  
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Dan Fagre photo  
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*A similar view of Grinnell Glacier from the glacier's eastern terminus shows extensive melting and subsequent result, Upper Grinnell Lake.*